SAFETY BRIEF-OTCW to Lake Michigan

Mark Snyder – Field Safety Off.

STAY FOCUSED ON YOUR SAFETY:

Can use cell phones on the beach

Rail Road Hazards – Be aware of your surroundings

There is a rail line that runs along the staging area and the access to the beach.

- Stay off the tracks
- Stage equipment at least 8 feet from the tracks
- Don't try to beat a train while crossing tracks

Vehicle Hazards – They are in motion

There is a lot of vehicle traffic up and down the road and onto the entrance of the beach. Be mindful of the following:

- Know your surroundings, be aware of blind spots
- Cross and walk in lighted areas
- Ramp to the beach is shared with workers and vehicles
- When operating heavy equipment use a spotter/flagman

Calling for HELP while on the beach.

Air horns will be staged in the PPE tent that is located at entrance of the beach. Each crew will be required to carry one horn. If there is an incident use the horn will be used to summons help. If you hear a horn stop work.

Badges and PPE- be Well Equipped

Badges are required to access the tent and also required for access the beach. (No badge, No PPE No Work)

The following PPE is required to access the beach:

- Safety Glasses
- Hard Hat
- Fire Retardant clothing – no on beach area
- Work boots
- H2S personal Monitor - no

Additional PPE used while cleaning up oil:

- Tyvek suite
- Rubber Boots
- Chemical Gloves
- Flotation device when within 10 feet of the water edge or working from a boat

PZ 25MAR14

ICS 208 – Site Safety Plan

Incident Name: Oil in OTCW to Lake Michigan	Date Prepared:	Operational Period: Operational	
Version Name: Rev 5	3/26/14	Date	Time
Applies to Site:	Start:	3/26/14	12:00am
Products: (Attach MSDS)	End:	3/26/14	12:00pm
PETROLEUM CRUDE OIL #0000001754			

SITE CHARACTERIZATION:

Water: 32 degrees	**Wave Direction: toward shore**
Wave Height: 6 inches	**Current Direction: toward shore**
Current Speed:	**Use:**
Land 26 degrees	**Temperature: 26 F**
Weather: Partly Sunny	**Wind Direction: WNW**
Wind Speed: 6 Gusting to 10mph	

Site Hazards

☒ Boat Safety OPT 637	☐ Fire, Explosion, In-Situ Burning	☐Pump Hose
☒Chemical Hazards	☐Heat Stress	☒Slips, Trips, and Falls
☒Cold Stress Bus as warming shelter	☐Helicopter Operations	☐Steam and Hot Water
☐Confined Spaces	☐Lifting	☐Trenching/Excavation
☐Drum Handling	☒Motor Vehicles	☐UV Radiation
☒Equipment Operations Vacuum trucks and light towers	☒Noise Double hearing protection required adjacent to vacuum trucks	☒Visibility Night operations
☐Electrical Operations	☐Overhead/Buried Utilities	☒Weather
☒Fatigue	☐Plants/Wildlife	☐
☒Other Non-essential personal removed from lakefront	☒Other Frontage Road controlled by Whiting PD	☒Other Large rocks leading to slips, trips, and falls.

Shore Cleaning with Hand Wiping of small rocks, or removal of small rocks – Similar hazards to beach cleaning with exception of wading in shallow water and ergonomic hazards.

Air Monitoring: Approximately every 2 Hours reading at both beach area and 6 separator area – latest readings at 2:00pm, 4:30pm, and 6:30pm, 9:00pm show zero LEL and 0 – 0.1ppm benzene.

%O2: 19.5% **%LEL: 0** **ppm Benzene: ND – 0.1**

ppm H2S: 0 ☒ **Other (Specify): deployed Area Raes at 6 separator outfall and along shore**

CONTROL MEASURES

Engineering Controls

☒Source of Release Secured - Air Gapped and Isolated	☐Valve(s) closed	☐Energy Sources Locked/Tagged Out
☒Site Secured	☐Facility Shut Down	☒Other – Equipment refuelling NOT allowed on beach. Any equipment to be refuelled must be moved up to roadway (at least 8' from rail tracks)

Personal Protective Equipment

☐Impervious Suit	☒Hard Hats	☒Boots
☐Inner Gloves	☐Respirators	☒Boots Waders while small rock cleaning and removal
☒Outer Gloves	☒Eye Protection –Safety Glasses	
☒Flame Resistance Clothing	☒Personal Floatation Device required within 10' of water	

Additional Control Measures

☒Decontamination	☐Medical Surveillance – see Medical Plan ICS 206	☐Facilities provided – OSHA 29 CFR 1910.120m
☐Sanitation	☐Stations Established	☐Provided – OSHA 29 CFR 1910.120f
☒Illumination	☐Facilities provided – OSHA 29 CFR 1910.120n	☒Other: Traffic Control on Beach ☒Other: No personnel access to large rocks (east end of beach) or outfall

TRAFFIC CONTROL ON BEACH – BEACH IS FOR LOADING / UNLOADING ONLY. NO VEHICLE PARKING ON BEACH

NO PERSONNEL ACCESS ALLOWED ON LARGE ROCKS ON EAST AND WEST END OF BEACH OR AT #6 OUTFALL.

STAY OFF OF RAIL ROAD TRACKS AND STAGE EQUIPMENT AT LEAST 8 FEET AWAY FROM RAILS

AIR HORNS FOR SUMMONING EMERGENCY AID ISSUED TO BEACH CREWS

WORK PLAN

☒ Booming	☐ Skimming	☒Vac Trucks	☐Pumping	☐Excavation
☐Heavy Equipment	☒Sorbent Pads	☐Patching	☐Hot Work	☐Appropriate Permits Used
☒Other Rock Cleaning				

TRAINING

☒Verified site workers trained per OSHA 29 CFR 1920.120 (FD & LF & OSRO's pre-trained – site safety briefing for OSROs "spot checked")

ORGANIZATION

Title	Name	Telephone/Radio
Incident Commander:	Bob Allendorfer	
Deputy Incident Commander:	Dave Kurt	
Safety Officer:	Pete Bauer	
Public Affairs Officer:	Tom Keilman	
Other:		

EMERGENCY PLAN

☒ Alarm System – Lake Front Unit Alarms, Air Horns for Beach Crews
☒Evacuation Plan – Lake Front Unit Evacuation Plan
☒First Aid Location – Lake Front East of Separator Boxes

NOTIFIED

☒ Hospital – St. Catherine's 219-392-7200
☒ Ambulance – BP Emergency Extension 1212 or 911
☐ Air Ambulance
☒ Fire – BP Emergency Extension 1212 or 911
☐ Law Enforcement
☒ Emergency Response/Rescue – BP Emergency Extension 1212 or 911

PRE-ENTRY BRIEFING

☒Initial briefing prepared for each site
☒Safety Talk Developed and Covered With Night Crew – Vehicle, Rail, PPE and Air Horns

INCLUDING ATTACHMENTS/APPENDICES

Attachments	Appendices
☐Site Map	☐Site Safety Program Evaluation Checklist
☒Hazardous Substance Information Sheets	☐Confined Space Entry Checklist
☐Site Hazards	☐Heat Stress Consideration
☒Monitoring Program	☒Cold Stress and Hypothermia Consideration
☐Training Program	☐First Aid for Bites, Stings, and Poisonous Plant

	Contact
☐Confined Space Entry Procedure	☐Safe Work Practice for Oily Bird Rehabilitation
☒Safe Work Practices for Boats	☒Spill Site Pre-Entry Briefing
☒PPE Description	☒Personnel Tracking System – Badge Scanner at LF Entrance, Safety Watch and Entry Log to Beach Area
☒Decontamination	☒Safety Talk
☐Communication and Organization	☒IH Monitoring Locations
☒Site Emergency Response Plan	
☒Process Safety Overview	
☒Lakefront Evacuation Procedures	

Prepared By: Pete Bauer **ICS Position:** Safety Officer **Phone:** 219-545-5409

Protecting What Matters Most®

Fisher Safety

BP Whiting

Floatation Device

Personal Floatation Device

Stearns Personal Floatation Device

I465ORG-05-OOOF - EA

Auto-Inflatable Personal Floatation Device by Mustang

Automatically inflates when submersed in 4" of water. Maintenance Free

MD3183 - EA

NOTE: Must be used at Docks facility or Lakefront when working on docks, or boarding waterborne vessels (e.g. boats, barges, etc.).

Green item numbers are in stock at Cal-A or Old Storehouse Tool Room.

BP Whiting

HAND PROTECTION

Chemical Protection

HOT Oil, HOT Water, Light Gas Cryogenic

MAPA Temp Tec NL-56, Neoprene, 14", -100F to 480 F
90051691 – PR Size 8
90051692 – PR Size 9
90051402 – PR Size 10

Applications: Handling/sampling of hot oil or water streams >150F (e.g. Resid, BFW, Hot Condensate, Hot Heavy Oils, etc.). Also used in LPG situations where refrigeration effect is anticipated.

General Chemical – Heavy Duty

Ansell Snorkel 4-412 PVC, Jersey Knit, 12"
90021852– DZ Size: 9 (Large)
90021853– DZ Size: 10 (X-Large)

Applications: Heavy duty environments when handling naphthas, process waters, amines, caustics, acids, etc. where metal burrs, tears, or punctures are a concern during the chemical handling work.

General Chemical – Light Duty

Ansell AlphaTech 58-535, Nitrile

90063958 – PK *Size 8* (Pk of 6 pairs)

90063959 **– PK Size 9 (Pk of 6 pairs)**

90063960 **– PK Size 10 (Pk of 6 pairs)**

90063961 – PK *Size 11* (Pk of 6 pairs)

Applications: Light duty handling/sampling of naphthas, process waters, amines, caustics, acids, etc. "Workhorse sampling glove". Also provides better manual dexterity for maintenance mechanics working on pumps or equipment with chemical contamination.

Green item numbers are in stock at Cal-A or Old Storehouse Tool Room.

BP Whiting

PROTECTIVE APPAREL

DuPont Tyvek Disposable Coveralls

***Coveralls**; Tyvek spunbonded olefin; **Style 125** Serged Seams; Elasticized Wrists and Ankles; Polyester zipper front; Set sleeve pattern for arm movement; Not flame resistant; 5.4 mil thick; Basis Weight; 1.2 oz./yd.; White;*

*90050354 – CS of 25 Medium **

*90004602 – CS of 25 Large **

90004619– CS of 25 X-Large

90004589 – CS of 25 2X-Large

90004590 – CS of 25 3X-Large

90004591 – CS of 25 4X-Large

*90050353 – CS of 25 5X-Large **

*90050352 – CS of 25 6X-Large **

*90050351 – CS of 25 7X-Large **

**may require longer lead times*

DuPont Tempro Disposable FR Apparel

Coveralls; DuPont Tempro; Secondary flame-resistant; ***Style 127*** Serged seams; Front zipper closure; Standard fit hood; Elastic wrists and ankles; Light Blue;

*90004618 – CS of 25 Medium **

*90021846– CS of 25 Large **

90021847 – CS of 25 X-Large

90021848– CS of 25 2X-Large

90021849 – **CS of 25 3X-Large**

90021850 – **CS of 25 4X-Large**

90024174– **CS of 25 5X-Large ***

90024173 – **CS of 25 6X-Large ***

*90043638 – CS of 25 7X-Large **

**may require longer lead times*

Alternates available in case of long lead time. See p.80

***Coveralls**; DuPont Tyvek spunbonded olefin; **Style 122** Serged seams; Elasticized wrists and ankles. Attached hood and gray booties; Set sleeve pattern for arm movement; Chemically inert; 5.4 mil thick; Basis Weight; 1.2 oz./yd.; White;*

*90050363 – CS of 25 Medium **

*90050362 – CS of 25 Large **

90004635 – CS of 25 X-Large

90050361 – CS of 25 2X-Large

90050360 – CS of 25 3X-Large

90050359 – CS of 25 4X-Large

*90050358 – CS of 25 5X-Large **

*90050357 – CS of 25 6X-Large **

*90050356 – CS of 25 7X-Large **

**may require longer lead times*

Green item numbers are in stock at Cal-A or Old Storehouse Tool Room.

Material Safety Data Sheet

1. Product and company identification

Product name Petroleum Crude Oil - Sour

MSDS # 10000001754

Historic MSDS #: 103701

Code 10000001754

Supplier BP Products North America Inc.
150 West Warrenville Road
Naperville, Illinois 60563-8460
USA

EMERGENCY HEALTH INFORMATION: 1 (800) 447-8735

Outside the US: +1 703-527-3887 (CHEMTREC)

EMERGENCY SPILL INFORMATION: 1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT INFORMATION 1 (866) 4 BP - MSDS
(866-427-6737 Toll Free - North America)
email: bpcares@bp.com

2. Hazards identification

Physical state Liquid.

Color Brown. to Black.

Emergency overview DANGER !

EXTREMELY FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF ABSORBED THROUGH SKIN.
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS.
CAUSES EYE AND SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION.
ASPIRATION HAZARD.
HARMFUL OR FATAL IF SWALLOWED.
CAN ENTER LUNGS AND CAUSE DAMAGE.
CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
HARMFUL IF INHALED.

Extremely flammable liquid. Harmful if inhaled. Harmful in contact with skin. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Aspiration hazard if swallowed. Can enter lungs and cause damage. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. If ingested, do not induce vomiting. Do not get in eyes. Avoid contact with skin and clothing. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential health effects

Eyes Causes eye irritation.

Skin Harmful if absorbed through the skin. Causes skin irritation. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Inhalation Harmful by inhalation. Vapors may cause drowsiness and dizziness. Can cause central nervous system (CNS) depression. May cause respiratory tract irritation.

Ingestion Aspiration hazard if swallowed. Can enter lungs and cause damage. Causes gastrointestinal irritation and diarrhea.

See toxicological information (Section 11)

3. Composition/information on ingredients

Ingredient name	CAS #	%
Crude oil	8002-05-9	100
Contains:		
Benzene	71-43-2	0 - 2
Hydrogen Sulfide	7783-06-4	0 - 1

4. First aid measures

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin contact

Immediately wash exposed skin with soap and water. Remove contaminated clothing and shoes. Clean shoes thoroughly before reuse. Wash contaminated clothing before reuse. Get medical attention.

Inhalation

If inhaled, remove to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion

Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Notes to physician

Treatment should in general be symptomatic and directed to relieving any effects.

Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.
Inhalation of hydrogen sulfide may cause central respiratory depression leading to coma and death. It is irritant to the respiratory tract causing chemical pneumonitis and pulmonary edema. The onset of pulmonary edema may be delayed for 24 to 48 hours. Treat with oxygen and ventilate as appropriate. Administer broncho-dilators if indicated and consider administration of corticosteroids. Keep casualty under surveillance for 48 hours in case pulmonary edema develops.

5. Fire-fighting measures

Flammability of the product

Extremely flammable liquid.

Flash point

Closed cup: -42.8 to 100°C (-45 to 212°F)

Fire/explosion hazards

In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable

Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable

Do not use water jet. Water may be ineffective. Water or foam may cause frothing.

Fire-fighting procedures

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous combustion products

Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)
sulfur oxides (SO_2, SO_3 etc.)
nitrogen oxides (NO, NO_2 etc.)
Hydrogen Sulfide (H2S)

Protective clothing (fire)

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Personal protection in case of a large spill

Chemical splash goggles. Chemical-resistant protective suit. Boots. Chemical-resistant gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product. CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator.

Methods for cleaning up

Large spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling

Put on appropriate personal protective equipment (see Section 8). Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Storage

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Other information

Light hydrocarbon vapors can build up in the headspace of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapor in tank headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks.
Do not enter storage tanks. If entry to vessels is necessary, follow permit to work procedures. Entry to any tanks or other confined space requires a full risk assessment and appropriate control measures to be put in place in conformance with appropriate regulations and industry practice on confined space entry.
When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks). Explosive air/vapor mixtures may form at ambient temperature. If product comes into contact with hot surfaces, or leaks occur from pressurized fuel pipes, the vapor or mists generated will create a flammability or explosion hazard.
Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

Vapors containing hydrogen sulfide may accumulate during storage or transport and may also be vented during filling of tanks. Hydrogen sulfide has a typical "bad egg" smell but at high concentrations the sense of smell is rapidly lost, therefore do not rely on sense of smell for detecting hydrogen sulfide. Use specially designed measuring instruments for determining its concentration.

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Occupational exposure limits
Crude oil	**ACGIH TLV (United States).** TWA: 5 mg/m³ 8 hour(s). Form: Oil mist, mineral (Recommended) TWA: 100 ppm 8 hour(s). Form: Stoddard Solvent (Recommended) TWA: 525 mg/m³ 8 hour(s). Form: Stoddard Solvent (Recommended) **OSHA PEL (United States).** TWA: 5 mg/m³ 8 hour(s). Form: Oil mist, mineral (Recommended) TWA: 2900 mg/m³ 8 hour(s). Form: Stoddard Solvent (Recommended) TWA: 500 ppm 8 hour(s). Form: Stoddard Solvent (Recommended)
Benzene	**ACGIH TLV (United States). Absorbed through skin.** STEL: 8 mg/m³ 15 minute(s). Issued/Revised: 5/1997 STEL: 2.5 ppm 15 minute(s). Issued/Revised: 5/1997 TWA: 1.6 mg/m³ 8 hour(s). Issued/Revised: 5/1997 TWA: 0.5 ppm 8 hour(s). Issued/Revised: 5/1997 **OSHA PEL (United States).** STEL: 5 ppm 15 minute(s). Issued/Revised: 6/1993 TWA: 1 ppm 8 hour(s). Issued/Revised: 6/1993 **OSHA PEL Z2 (United States).** AMP: 50 ppm 10 minute(s). Issued/Revised: 6/1993 CEIL: 25 ppm Issued/Revised: 6/1993 TWA: 10 ppm 8 hour(s). Issued/Revised: 6/1993
Hydrogen Sulfide	**ACGIH TLV (United States).** STEL: 5 ppm 15 minute(s). Issued/Revised: 11/2009 TWA: 1 ppm 8 hour(s). Issued/Revised: 11/2009 **OSHA PEL Z2 (United States).** AMP: 50 ppm 10 minute(s). Issued/Revised: 6/1993 CEIL: 20 ppm Issued/Revised: 6/1993

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Some states may enforce more stringent exposure limits.

Control Measures

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

Personal protection

Eyes

Avoid contact with eyes. Safety glasses with side shields or chemical goggles.

Skin and body

Do not get on skin or clothing. Wear clothing and footwear that cannot be penetrated by chemicals or oil.

Respiratory

Use adequate ventilation. Do not breathe vapor or mist. Air supplied respiratory protection approved by NIOSH should be worn whenever it is required for the worker's face to be within 3 feet of an open hatch.

Hands

Wear gloves that cannot be penetrated by chemicals or oil. Recommended: Viton Gloves.

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

9. Physical and chemical properties

Physical state	Liquid.
Color	Brown. to Black.
Odor	Petroleum Hydrocarbon, Rotten eggs.
Flash point	Closed cup: -42.8 to 100°C (-45 to 212°F)
Specific gravity	0.74 to 1.03 [Water = 1]
Viscosity	SUS: 31 to 9000 SUS at 20°C
Boiling point / Range	17.8 to 537.8°C (-0.04 to 1000°F)
Melting point / Range	-60 to -20°C (-76 to -4°F)
Vapor pressure	>0.359 kPa (>2.7 mm Hg) at 20°C
Vapor density	>1 [Air = 1]
Solubility	Insoluble in water.

10. Stability and reactivity

Stability and reactivity	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials. halogenated compounds
Hazardous decomposition products	Combustion products may include the following: carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide) nitrogen oxides (NO, NO_2 etc.) sulfur oxides (SO_2, SO_3 etc.) Hydrogen Sulfide (H2S)
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological information

Classification

Product/ingredient name	IARC	NTP	OSHA
Crude oil	3	-	-
Benzene	1	Proven.	+

IARC :
1 - Carcinogenic to human.
3 - Not classifiable as a human carcinogen.

NTP :
Proven - Known to be human carcinogens.

OSHA :
+ Potential occupational carcinogen

Other information

Crude oil is a naturally occurring complex mixture of hydrocarbons whose exact composition and physical properties can vary widely depending upon its source. From skin-painting studies in laboratory animals, it has been concluded that most, if not all, petroleum crudes, regardless of source, possess carcinogenic activity to some degree. This means that workers who practice poor personal hygiene and who are repeatedly exposed by direct skin contact to crude oil over many years may potentially be at risk of developing skin cancer. However, intermittent or occasional skin contact with petroleum crude oils is not expected to have serious health effects as long as good personal hygiene measures such as those outlined in this material safety data sheet are followed. Crude oil has not been identified as a carcinogen by NTP, IARC or OSHA. Crude oils are generally referred to as "sour" if they can release dissolved hydrogen sulfide (H2S) which could result in a significant exposure. The amount of dissolved H2S can vary considerably with the crude oil source.

Hydrogen sulfide (H2S) gas may accumulate in storage tanks of bulk transport compartments containing this material. Contact with eyes causes painful conjunctivitis, sensitivity to light, tearing

and clouding of vision. Inhalation of low concentrations causes a runny nose with a loss of sense of smell, labored breathing and shortness of breath. Direct contact with skin causes pain and redness. Other symptoms of exposure include profuse salivation, nausea, vomiting, diarrhea, giddiness, headache, dizziness, confusion, rapid breathing, rapid heart rate, sweating, weakness, sudden collapse, unconsciousness and death due to respiratory paralysis.

Cardiac neurological effects have also been reported. Prolonged breathing (greater than one hour) of concentrations of H2S around 50 ppm can produce eye and respiratory tract irritation. Levels of 250 to 600 ppm will result in fluid in the lungs, and concentrations around 1,000 ppm will cause unconsciousness and death in a short period of time. Since the sense of smell rapidly becomes insensitive to this toxic, colorless gas, odor cannot be relied upon as an indicator of concentrations of the gas. Always exercise caution when working around closed containers.

Benzene: Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness, drowsiness, or excitation. Exposure to very high levels can result in unconsciousness and death.

Benzene: Long-term overexposure to benzene has been associated with certain types of leukemia in humans. In addition, the International Agency for Research on Cancer (IARC), the National Toxicology Program, and OSHA consider benzene to be a human carcinogen. Chronic exposures to high levels of benzene have been reported to cause adverse blood effects including anemia. Benzene exposure can occur by inhalation and absorption through the skin.
Inhalation and forced feeding studies of benzene in laboratory animals have produced a carcinogenic response in a variety of organs, including possibly leukemia, other adverse effects on the blood, chromosomal changes and some effects on the immune system. Exposure to benzene at levels up to 300 ppm did not produce birth defects in animal studies; however, exposure to higher dosage levels resulted in a reduction of body weight of the rat pups (fetotoxicity). Changes in the testes have been observed in mice exposed to benzene at 300 ppm, but reproductive performance was not altered in rats exposed to benzene at the same level. Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this material.

Potential chronic health effects

Carcinogenicity Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

12. Ecological information

Ecotoxicity

No testing has been performed by the manufacturer.

13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Additional information
DOT Classification	UN 1267	PETROLEUM CRUDE OIL	3	I	
TDG Classification	UN 1267	PETROLEUM CRUDE OIL (Crude oil)	3	I	
IMDG Classification	UN 1267	PETROLEUM CRUDE OIL	3	I	Emergency schedules (EmS) F-E, S-E
IATA/ICAO Classification	UN 1267	PETROLEUM CRUDE OIL	3	I	

15. Regulatory information

U.S. Federal Regulations

United States inventory (TSCA 8b)

All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: Hydrogen Sulfide
SARA 302/304 emergency planning and notification: Hydrogen Sulfide
SARA 302/304/311/312 hazardous chemicals: Crude oil; Benzene; Hydrogen Sulfide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Petroleum Crude Oil - Sour : Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Benzene	71-43-2	0 - 2
	Hydrogen Sulfide	7783-06-4	0 - 1
Supplier notification	Benzene	71-43-2	0 - 2
	Hydrogen Sulfide	7783-06-4	0 - 1

CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):

CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.54 kg); Hydrogen Sulfide: 100 lbs. (45.4 kg);

State regulations

Massachusetts Substances

The following components are listed: PETROLEUM CRUDE; BENZENE; HYDROGEN SULFIDE

New Jersey Hazardous Substances

The following components are listed: PETROLEUM DISTILLATES; CRUDE OIL (PETROLEUM); BENZENE; HYDROGEN SULFIDE

Pennsylvania RTK Hazardous Substances

The following components are listed: PETROLEUM; BENZENE; HYDROGEN SULFIDE (H2S)

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Benzene

Other regulations

Canada inventory

All components are listed or exempted.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

Australia inventory (AICS)

All components are listed or exempted.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (ENCS)

Not determined.

Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.

16. Other information

Label requirements

DANGER !

EXTREMELY FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF ABSORBED THROUGH SKIN.
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS.
CAUSES EYE AND SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION.
ASPIRATION HAZARD.
HARMFUL OR FATAL IF SWALLOWED.
CAN ENTER LUNGS AND CAUSE DAMAGE.
CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
HARMFUL IF INHALED.

HMIS® Rating :

Health	2
Flammability	3
Physical Hazard	0
Personal protection	X

National Fire Protection Association (U.S.A.)

History

Date of issue	12/07/2011.
Date of previous issue	03/05/2004.
Prepared by	Product Stewardship

Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.